CLAIMS

What is claimed is:

1. A method of processing data streams in a contention-based WLAN system, the method comprising:

(A) generating two or more sub-streams corresponding to a first data stream;

(B) assigning priority to each sub-stream, wherein at least two sub-streams have different priorities; and

(C) transmitting data corresponding to each sub-stream based on the assigned priority.

2. The method of claim 1, wherein the contention-based WLAN system conforms to an IEEE 802.11 standard and supports a quality of service (QoS) facility.

3. The method of claim 1, wherein the two or more sub-streams comprise a base sub-stream and at least one enhancement sub-stream.

4. The method of claim 1, wherein the first data stream is a hierarchical stream and step (A) comprises partitioning the hierarchical stream based on the hierarchy of said stream .

5. The method of claim 1, wherein the first data stream is an embedded stream and step (A) comprises generating the two or more sub-streams using an embedded encoder.

6. The method of claim 1, further comprising, for each sub-stream, accumulating data corresponding to the sub-stream in a corresponding transmission queue.

7. The method of claim 6, further comprising, for each queued data packet, (i) running a timer having a threshold value and (ii) discarding the data packet without transmission, when the timer reaches the threshold value.

8. The method of claim 7, wherein, for each enhancement packet, the timer starts when a corresponding base packet is transmitted.

9. The method of claim 7, wherein timers corresponding to different queues have different threshold values.

10. The method of claim 1, wherein step (B) comprises, for each sub-stream, selecting parameters of a corresponding QoS parameter set.

11. The method of claim 1, further comprising:

(D) generating two or more sub-streams corresponding to the transmitted data; and

(E) processing the sub-streams of step (D) to generate an output data stream corresponding to the first data stream.

12. The method of claim 1, further comprising:

generating two or more sub-streams corresponding to a second data stream; and

assigning priority to each of said sub-streams.

13. The method of claim 12, wherein at least one sub-stream corresponding to the first data stream and at least one sub-stream corresponding to the second data stream have the same priority.

14. At a transmitting station in a contention-based WLAN system, apparatus adapted to process data streams, the apparatus comprising:

(A) a device adapted to generate two or more sub-streams corresponding to a first data stream; and

(B) a controller coupled to a transmitter, wherein:

the transmitter is adapted to transmit data corresponding to the two or more sub-streams; and

the controller is adapted to (i) assign priority to each sub-stream, wherein at least two sub-streams have different priorities and (ii) apply sub-stream data to the transmitter based on the assigned priority.

15. The apparatus of claim 14, wherein the contention-based WLAN system conforms to an IEEE 802.11 standard and supports a quality of service (QoS) facility.

16. The apparatus of claim 14, wherein the two or more sub-streams comprise a base sub-stream and at least one enhancement sub-stream.

17. The apparatus of claim 14, wherein the first data stream is a hierarchical stream and the device comprises a partitioner adapted to generate the two or more sub-streams based on the hierarchy of said stream.

18. The apparatus of claim 14, wherein the first data stream is an embedded stream and the device comprises an embedded encoder adapted to generate the two or more sub-streams based on scalable coding.

19. The apparatus of claim 14, further comprising, for each sub-stream, a buffer adapted to queue data corresponding to the sub-stream before application to the transmitter.

20. The apparatus of claim 19, the controller is further adapted to, for each queued data packet, (i) run a timer having a threshold value and (ii) instruct the corresponding buffer to discard the data packet without application to the transmitter, when the timer reaches the threshold value.

21. The apparatus of claim 20, wherein, for each enhancement packet, the timer starts when a corresponding base packet is transmitted.

22. The apparatus of claim 20, wherein timers corresponding to different buffers have different threshold values.

23. The apparatus of claim 14, wherein the controller is adapted to, for each sub-stream, select parameters of a corresponding QoS parameter set.

24. The apparatus of claim 14, further comprising a device adapted to generate two or more sub-streams corresponding to a second data stream, wherein the controller is adapted to assign priority to each said sub-stream.

25. The apparatus of claim 24, wherein at least one sub-stream corresponding to the first data stream and at least one sub-stream corresponding to the second data stream have the same priority.

26. At a receiving station in a contention-based WLAN system, apparatus adapted to generate an output data stream corresponding to a first data stream applied to a transmitting station in said system, the apparatus comprising:

(A) a processor coupled to a receiver, the processor adapted to generate two or more sub-streams corresponding to data received by the receiver from the transmitting station; and

(B) a first device coupled to the processor and adapted to process the two or more sub-streams generated by the processor to generate the output data stream, wherein the transmitting station comprises:

(i) a second device adapted to generate two or more sub-streams corresponding to the first data stream; and

(ii) a controller coupled to a transmitter, wherein:

the transmitter is adapted to transmit data corresponding to the two or more sub-streams generated by the second device; and

the controller is adapted to (i) assign priority to each sub-stream generated by the second device, wherein at least two of said sub-streams have different priorities and (ii) apply sub-stream data to the transmitter based on the assigned priority.

27. The apparatus of claim 26, wherein the contention-based WLAN system conforms to an IEEE 802.11 standard and supports a quality of service (QoS) facility.

28. The apparatus of claim 26, wherein:

the two or more sub-streams generated by the second device comprise a base sub-stream and at least one enhancement sub-stream; and

the two or more sub-streams generated by the processor comprise a base sub-stream and at least one enhancement sub-stream.

29. The apparatus of claim 26, wherein:

the first and output data streams are hierarchical streams;

the second device comprises a partitioner adapted to generate, using scalable coding, the two or more sub-streams generated by the second device; and

the first device comprises a reconstructor adapted to combine the two or more sub-streams generated by the processor to produce the output data stream.

30. The apparatus of claim 26, wherein:

the first and output data streams are embedded streams;

the second device comprises an embedded encoder adapted to generate the two or more sub-streams generated by the second device; and

the first device comprises an embedded decoder adapted to process the two or more sub-streams generated by the processor to produce the output data stream.

31. A contention-based WLAN system, comprising a transmitting station and a receiving station, wherein:

the transmitting station is adapted to:

generate two or more sub-streams corresponding to a first data stream;

assign priority to each sub-stream, wherein at least two sub-streams have different priorities; and

transmit data corresponding to the two or more sub-streams based on the assigned priority; and

the receiving station is adapted to:

generate two or more sub-streams corresponding to data received from the transmitting station; and

process said two or more generated sub-streams to generate an output data stream corresponding to the first data stream.

32. The system of claim 31, wherein the contention-based WLAN system conforms to an IEEE 802.11 standard and supports a quality of service (QoS) facility.

33. For a wireless network that supports priority-based transmission of data streams, a transmitting station capable of transmitting one or more data streams, wherein the transmitting station is capable of:

for at least one data stream, generating two or more sub-streams corresponding to said data stream, each sub-stream having a different assigned priority level; and

transmitting the two or more sub-streams based on the assigned priority levels, wherein, the transmitting station is adapted to selectively drop one or more sets of data in one or more sub-streams having relatively low priority levels when warranted by existing transmission characteristics.

34. The invention of claim 33, wherein the wireless network is a wireless network conforming to an IEEE 802.11 standard.